

Table 1: Affiliations and stakeholder groups interviewed

Stakeholder groups	Affiliated Institutions/organisations and country	Number of interviewees	Dates of Interviews
Think-tank, research Institutes & universities (academia)	Harvard University, USA [1];University of Wisconsin-Madison, USA [1]; The Rockefeller University, USA [1]; National Center for Atmospheric Research, USA [1]; University of Cambridge, UK [1]; World Agroforestry Center, Kenya [1]; Ohio State University, USA [1]; University of California, San Diego, USA[1]; University of Illinois, USA[1]; Institute of Development Studies (IDS)-University of Sussex, UK[1]; Swiss Federal Institute of Technology(ETH) in Zurich [2]; Widener University, USA[1]; World Climate Research Program, Zurich[1]; Western University, Canada[1]; Griffith University, Australia[1]; Federal University of Rio de Janeiro, Brazil[1]; Grantham Institute for Climate Change, Imperial College, UK[1]; The Earth Institute, Columbia University, USA [1]; University of British Colombia, Canada [1]; Grantham Research Institute for Climate Change, London School of Economics, UK [1]; International Centre for Tropical Agriculture (CIAT), Colombia[1]; University of Gambia [1]; Met Office UK [3]; Loughborough University, UK[1]; GEOSAT technology, France[1]; International Institute for Environment & Development, UK[2]; EUMESTAT, Germany[1]; University of Botswana [1]; Sokoine University of Agriculture, Tanzania[1]; Climatic Analytics, Germany[1]	34	July-October 2013, October, 2014
Multilateral and intergovernmental organisations	International Finance Corporation, World Bank Group USA[1]; United Nations Development Programme, Congo [1]; Food Agriculture Organization of United Nations (FAO), Italy[1]; United Nations Framework Convention on Climate Change (UNFCCC), Germany[1]; United Nations Economic Commission for Africa, Rwanda[1];	11	July-October, 2013,

	Global Environment Facility (GEF)[1]; United Nations Environment Programme (UNEP), Nairobi[1]; World Meteorological Organization (WMO), Guinea[1]; African Development Bank, Tunisia[1]; European Commission, Brussels, Belgium[1]; European Union for Institute for Security, France[1]		
National government/policymakers	National Assembly, Burkina Faso, Deputy Chairman Parliamentarian [1] Presidency, Botswana (former President) [1]; Ministry of Environment, Water and Climate, Zimbabwe (Minister)[1]; Ministry of Fisheries & Water Resources, The Gambia (minister)[1]; Meteorological services, Swaziland, African Negotiator for Climate Change [1]; Ministry of Environment, Climate Change and Reforestation, Benin (Minister)[1]; Prime Minister's Office, Ministry of Environment & Forest, Ethiopia, (Senior Advisor)[1]; Ministry of water, irrigation & energy, Ethiopia (Minister)[1]; Ministry of Env. Sc. Tech & Innovation, Ghana, (Minister)[1]; Department of Meteorology Tunisia (Senior Advisor)[1] Department of Meteorology, Morocco (Senior Director) [1]	11	October-November, 2013 & October, 2014
Non-governmental organisations	Environmental Development Action, Dakar, Senegal [1]; Pan-African Climate Justice Alliance, Kenya[1]; Mary Robinson Foundation Climate Justice[1]; ACORD, Kenya[1]; One World, South Africa[1]	5	October, 2013 & 2014
Farmers	Dembecha Wereda of West Gojam Zone, Ethiopia [4]; Botha Bothe, Berea and Maseru districts, Lesotho [23]; Northern, Eastern, Western and Southern Provinces, Rwanda [47]; Acholi Sub Region, Uganda [182]; Bongo District (Upper East Region) Ghana[20];	276	February-October, 2013, February, 2014,
Total		337	January, 2015

Table 2: Examples of stakeholder viewpoints on adaptation challenges

Stakeholder groups	Comments representing mainstream or consensus viewpoints within the sample	Comments representing dissenting viewpoints within the sample	Adaptation issues
Climate scientist	<p>“There is definitely a need to improve the climate monitoring system in Africa. If you want to make yourself less vulnerable to climate change, you have to look at the past variability. What are the kinds of droughts and floods and heat waves you can expect? The best data is from the past. If you don't have any records, which much of Africa doesn't have, you don't know how to make yourself resilient, because you don't know what the variability. Having scientific data is incredibly helpful in that regard, and it's one of the major gaps in Africa; a working observing system”.</p> <p>(Respondent, CS 21)</p> <p>“A major policy change would be to have Metrological data available. I think that would improve a lot of the science, improve the estimations that we're making in terms of climate change, and that would mean much better estimates of agricultural crops”</p> <p>(Respondent, CS 27)</p>	<p>“So we have some level of certainty about what the climate models can tell us about temperature, but very much lower levels of certainty about what the climate models are telling us about rainfall, particularly at the regional level which is important for agriculture, and also with respect to extreme events; floods, droughts, and so forth. We may have a lot of information, a lot of numbers, but the level of uncertainty attached to those numbers is such that it's very hard...it's not impossible and wise to use it for planning purposes but we have got to be very careful”.</p> <p>(Respondent, CS32)</p> <p>“There is a huge problem of down-scaling, let's say the models are better in predicting average temperature changes or precipitation changes in large geographic areas, but when it comes to downscaling to specific regions, they become very weak in predicting things...the precipitation is usually harder to predict and that's what matters more in agriculture. So that's probably the natural science side. The numbers suggest very high precision, but if you look at it carefully, all the climate models are not precise at all” (Respondent, CS 36).</p>	Climate data

UN expert	<p>“There are some places where the data are terrible, and some places where the data are not that terrible. It's not that unusual. Interior Asia is similar, South Asia is quite similar, as is much of Latin America. So I think scientists have found lots of ways to work with inadequate degrees of data”. (Respondent, UNE 23)</p>	<p>“Actually, I think that it's not correct that there is a lack of climate data in Africa. I think some of the most fundamental questions don't have to do with data of the climatological type, they have to do with data and information about how people are actually going to respond to climate change. I don't think scientific uncertainty is a big issue. We need to take action and not use scientific uncertainty as a basis for non-action” (Respondent, UNE 34).</p>	
Farmer/Agricultural extension officer	<p>“Lack of access to information on weather pattern is one of our problems because this makes it difficult to know when exactly there will be rainfall. In fact, seasonal forecast for farming through Radio is not always reliable because we get rainfall when don't expect it. We have seen seasonal pattern change over the years. It was not like this 30 years ago when information can be reliable”. (Respondent, F29)</p>	<p>“We do have some data but there is good record of them but our governments have not found a way of processing and putting them together in local languages that will help farmer to make decision on farming as well as warning about drought and flooding...this problem affects crop production and results in big loss” (Respondent, AEF 38)</p>	
National policymaker	<p>“A major one for me is that all policies should be informed by the local institutions that already exist, and to put more emphasis on that in policy formulation. It will go all the way from consulting with what kind of knowledge is taken into account when you formulate policies, through to implementation. So it's much broader. I think a lot of policies that exist do well in pointing out the importance of local knowledge, but I don't think the actors that are involved in the process necessarily reflect the broad capacity. So there is a lot of work to be done on understanding the institutions and knowledge and capacity that still exists, and to be able to feed that properly into policy. Not only the policy documents but in terms of the implementation and making sure that the voices of the poorest and most vulnerable are represented when discussing policies and have a chance to input. I know this is very broad and quite general, but I do think there is a lot more work to be done”. (Respondent, NP 19)</p>	<p>“There is also the related challenge of, if we don't know what kind of adaptation is needed, what should we do today to prepare for it? This is why I come back to the issues of institutional development, human capital development, physical capital development that will allow African countries to be prepared for whatever kinds of adaptation challenges they have” (Respondent, NP 24)</p>	Adaptation policy

UN expert	<p>“But in any case, everyone agrees that adaptation will need to happen in Africa and other places as well. This is not purely an Africa problem, but African farmers will of course have to adapt. Africa is home to some of the poorest people in the world, and it’s much easier to adapt if you have more money than if you have less money. So the policy environment enables adaptation to take place, and to take place without undue challenges from the policy environment will make it easier for people to adapt and to manage with the climate change that we can expect between now and 2050”. (Respondent, UNE 33)</p>	<p>The other thing that we stress in a policy environment is to prepare the institution, the infrastructure, and the human capital to develop the methodologies, the infrastructure of the crop varieties regardless of what the climate change is. So what we need to do is to develop the capacity to respond to a variety of potential changes in the future. Right now in Africa, that capacity is thoroughly lacking. Investment in the end of the 20th century on agricultural research, both biological research as well as socioeconomic research was substantially reduced. The recent changes with countries agreeing to spend 10% of their budget on agriculture. (Respondent, UNE 30)</p>	
Adaptation policy expert	<p>“Clearly there are a significant number of adaptation projects carried out and sponsored by a large number of entities in Africa. What has been missing from these projects is better coordination and integration of these projects, and better reporting of the findings of these projects in the open literature in a way that becomes available to all who need it for use. Putting a more rigorous scientifically sound analysis and assessment and reporting of such findings from such projects can inform policy and adaptation practice”. (Respondent, APE, 37)</p>	<p>“There are a lot of adaptation projects that are well coordinated in the East Africa especially those under UNEP programs. This organisation should find a better way of communicating these results to different stakeholders” (Respondent, APE 22).</p>	
National policymaker/government advisor	<p>“We know that access to international funds have been very difficult and they always say there is a lot of money when we cannot access them. I don’t think we can contribute much to adaptation project because of our limited budget, and more demanding national issues like tackling food insecurity, poverty and diseases” (Respondent, NP27)</p>	<p>“While we need more money for adaptation from developed world, I think the main problems are within African governments, it’s not a lack of money per se, but a lack of institutional capacity to implement adaptation. In my view, pouring more money into it is certainly not the solution but accessing becomes a problem without good institution. I think we need to develop clear policies and strategies of what we want, On three fronts, we need to have clearer strategies on our priorities for the adaptation, what we want to do with it, how much money we need for that effect, and secondly we need to have clearer strategies for the energy supply systems, and the third one is transportation and mobility to</p>	Finance

		<p>have better concepts, and then to build up the institutional capacity to implement these strategies. So the solution is not just more money, it's a lot about developing smarter strategies in these three areas'' (Respondent, GA 12)</p>	
Adaptation policy expert	<p>''Frankly, in an ideal world, the people who caused the problem would be financing the adaptation. In the real world that's not happening. Countries are going to have to look at their own interests and think whether or not it's useful to spend their own money on adaptation. More countries are coming to the conclusion that they better get ready''. (Respondent, APE 35)</p>	<p>''The problem is funding. The other problem is, developing really good adaptation planning to allow for whatever money comes in to go to Africa's highest needs in order of priority. So all African countries are supposed to be developing adaptation plans, and my understanding is that some countries are much better than other countries. One of the problems is, if any African country can develop really good adaptation plans, they're more likely to get funding earlier. There is some money available, mostly from Northern European countries. The US has not yet provided the money. So it's in Africa's interest to get their adaptation needs identified in the most sophisticated way they can''. (Respondent, APE 46)</p>	
UN expert	<p>''Things have become better in some countries, because there is now some capacity within these countries. But I remember ten years ago when I started with UNDP, between the ideas of the project to the project implementation, there was a statistic that shows that it takes 60 months on average 5 years ago. The international community is willing to provide up to US\$ 50 million to a given country to adaptation, but it just...sometimes you don't have the evidence. You need to understand the baseline, you need to connect all the dots. Then for the project we are pushing, we need co-finance. We never 100% finance a project, so then it becomes very difficult''. (Respondent, UNE 37)</p> <p>''I think this must be a partnership between developing countries obviously, and donors. In many cases, developing countries are at this very point, already dependent on donor money unfortunately. I think that it's up to developing countries to put priorities to their national development. In constructive development dialogue, one can hope that also the donors can then listen to that and accept that their money is used for this kind of development''(Respondent, UNE 43)</p>	<p>''They are happy to receive some support from the World Bank, UNDP, and there are a lot of bad habits that have been taken between development agencies, UN agencies, and governments. If you sit in a government you don't make much money, so if you have access to the UNDP or to the World Bank to access some special funds on adaptation, you try to keep that for yourself, you don't share. This is nonsense. I don't understand why the UN is organised...we have more than 30 different agencies. Climate Change is the area with the most overlap. Sometimes we have competitions to access the funds or to help a country to address'' (Respondent, UNE 50)</p> <p>''Besides the money not being enough or not being predictable, there are a lot of difficulties in African countries being able to understand what is required to access this money. The danger is always that they would want to work on the procedures and simply the procedures instead of learning how to work with the existing ones. But of course, capacity in these</p>	

		countries is also very limited. Very few people are capable of doing work and are really busy doing multiple things. To try to build human capacity along with strengthening institutional capacity to be able to manage these processes” “Respondent, UNE 56”	
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Appendix-Checklist used for the stakeholders interviews

- Introduction and explanation of the reasons for the interviews on climate change
- Climate predictions and projection uncertainties in Africa-why and how?
- Adaptation activities, strategies and climate policy- by whom and how?
- Involvement of stakeholders in decision-making at local and national levels adaptation-how?
- Role of research and development-how?
- Sources of finance for adaptation-by whom and how?
- Prioritization of adaptation in development agenda-why and how?
- Awareness, experience of impact climate change-how and when?